

87103RLO  
Customer No. 01333

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

Liang-Sheng Liao, et al

ORGANIC ELECTROLUMINESCENT  
DEVICES HAVING A STABILITY  
ENHANCING LAYER

Serial No. 10/713,523

Filed 14 November 2003

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA. 22313-1450

Sir:

Group Art Unit: 2879

Examiner: Anne M. Hines

I hereby certify that this correspondence is being deposited today with the United States Postal Service as first class mail in an envelope addressed to Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

*Deborah Walczak*  
Deborah Walczak

*February 14, 2006*  
Date

**Declaration Under Rule 1.131**

Liang-Sheng Liao states as follows:

I hold a Bachelor of Science Degree in Semiconductor Physics from Jiangxi University, 1982 (China), a Master of Science Degree in Semiconductor Physics from Nanjing University, 1988 (China) and a PhD Degree in Condensed Matter Physics from Nanjing University, 1996 (China).

I am the author of more than 50 technical publications, many of which are in the field of organic light emitting devices. I also hold 16 US patents.

I was employed by the Eastman Kodak Company in December of 2000 and have continuously worked in the field of light emitting devices since that time.

During my employment with Eastman Kodak Company, I worked with Kevin P. Klubek, and both Kevin and I are co-inventors in the above-identified invention and actually reduced the invention to practice as indicated below. Eastman Kodak Company is the Assignee of this application.

Prior to February 14, 2003, I received materials from Kevin P. Klubek and personally fabricated six organic light emitting devices. Two of these organic light emitting devices fully support the subject matter of claim 1 and are described in detail on page 18, line 3 through page 22, line 20 of the present application. Examples 4 and 5 of the present application represent data taken from an Electroluminescent testing system located in the Eastman Kodak Company's Research Laboratory in Rochester, New York.

Equipment in this system is specified in the first paragraph on page 19 of the present application.

Attached are sheets of data, which were prepared prior to the Boroson et al. filing date and show an actual reduction to practice. The dates on these sheets have been blanked out but these dates are all prior to the filing of the Boroson et al. application. The first sheet is entitled B1720. Device A corresponds to example 4 of the present application and Device D corresponds to example 5 of the present application. Both of these devices were reduced to practice.


The data sheet entitled 4 Quad Lum with Comments shows the data corresponding to example 4 in the present patent application (See row 3). The next sheet entitled 1D1 shows in data row 4, the data corresponding to example 5 in the present patent application.

After the devices were originally made and tested, Dustin Comfort, a technician in the Research Labs, conducted operational lifetime testing as is described on page 19, lines 6-7 of the present application. Fig. 4 of the present application shows the results of the testing conducted by Dustin Comfort. All of the data discussed herein, was stored in a share drive at the Research Laboratories prior to the filing date of the Boroson et al. application.

I am a named co-inventor in the Boroson et al. application. The text set forth in column 14, lines 11-45 of US Patent 6,824,950 was based solely on information provided by me and not by Michael Boroson.

The undersigned co-inventor declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 2/14/2006

  
\_\_\_\_\_  
Liang-Sheng Liao  
6C Clintwood Drive  
Rochester, New York 14620 USA



20

B1722- [REDACTED] CC: FK Choroqist: X ELSP Dis: [REDACTED]

Run Request Date:		Operator:		Coater:		Originator:		Req. Notes:	
		LL		CFC				1) Use CFx-treated ITO sub. (Polytronix)	

### 4 Quad Lum with Comments

(CT STD CELL LUM PROGRAM.)

>> Enter Panel ID >>

18 Characters Max

Cell Size (cm<sup>2</sup>)

100.0E-3

Test Date

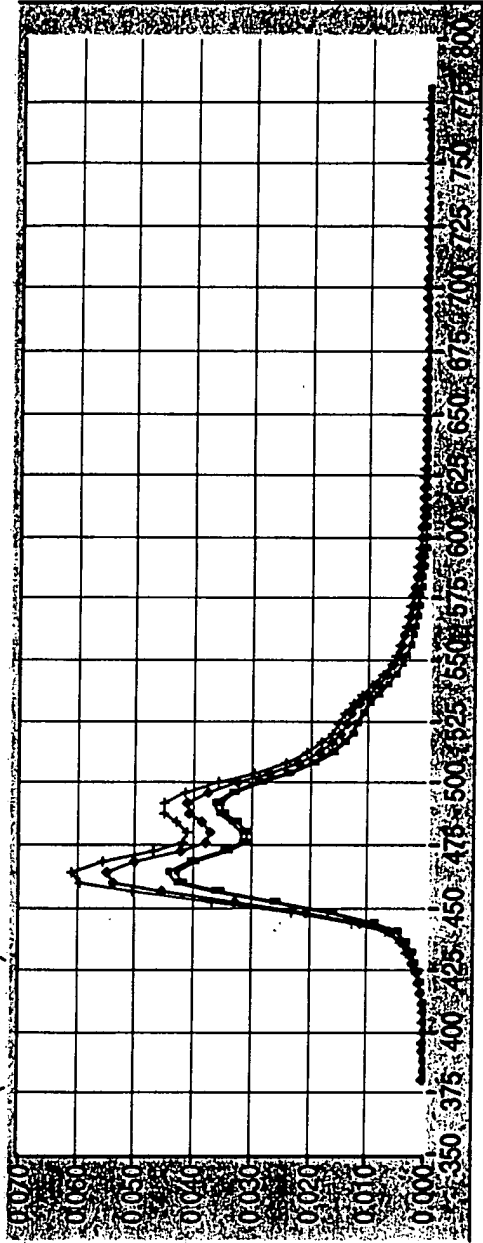
Test Start Time

Run Time (sec)

99

	Curr Density {mA/cm <sup>2</sup> }	Voltage {VDC}	Luminance {cd/m <sup>2</sup> }	Yield {cd/A}	X {CIE}	Y {CIE}	Radiance {W/Sr/m <sup>2</sup> }	Rad. Yield {W/A}	Peak WL {nm}	Bandwidth {nm}	Current {mA}	Efficiency {lm/W}	Efficacy {lm/W}
1	20	7.76	498	2.49	0.134	0.211	2.70	0.042	464	56	2.0	1.01	185
2	20	7.48	484	2.42	0.134	0.212	2.62	0.041	464	56	2.0	1.02	185
3	20	7.60	661	3.30	0.142	0.207	3.58	0.056	464	52	2.0	1.37	185
4	20	7.58	603	3.01	0.143	0.208	3.24	0.051	464	52	2.0	1.25	186
Quad 1	1B1												
Quad 2	1B3												
Quad 3	1A1												
Quad 4	1A2												

Radiance (W/Sr/m<sup>2</sup>)



Click To Accept ALL Comments 2

ACCEPT  
COMMENTS

Data File Pathname

Write Data File?

No Yes

Serial Port (0)

24

K2400 GPIB Address

25

Compliance Level

>> Enter Panel ID >> **1D1**

Standard Cell

Cell Size (cm<sup>2</sup>) **100.000E-3** "Other" Size (cm<sup>2</sup>) **0.000000**

Peak Wavelength (nm) **484** Bandwidth (nm) **52** Efficacy (lm/W) **170.8**

Current Density (mA/cm<sup>2</sup>) **0.5** **2.0** **6.0** **20.0** **40.0** **100.0**

Voltage (VDC) **3.74** **4.23** **4.85** **6.22** **7.77** **11.87**

Luminance (cd/m<sup>2</sup>) **14.7** **61.1** **173.0** **507.9** **929.8** **2047.0**

Yield (cd/A) **2.95** **3.05** **2.88** **2.54** **2.32** **2.05**

Radiance (Wsr/m<sup>2</sup>) **0.088** **0.360** **1.027** **3.026** **5.560** **12.280**

Efficiency (W/A) **0.054** **0.057** **0.054** **0.048** **0.044** **0.039**

Efficiency (lm/W) **2.47** **2.27** **1.87** **1.28** **0.94** **0.54**

(CIE 1931) **0.133** **0.133** **0.133** **0.133** **0.134** **0.134**

(CIE 1931) **0.190** **0.189** **0.187** **0.185** **0.185** **0.184**

Other Parameters

Series Voltage **1.895** VDC

Series Current **1.895** mA

Maximum Reverse Voltage VDC

(Std Cell ONLY)

Number of SQUARES (For Std Cell - 7.0) **101=18; 102=68**

OHMs per SQUARE

Cell Current (mA) **0.5**

Cell Voltage (VDC) **3.74**

Test Date

Test Start Time

Run Time (sec) **476**

PR Luminance Series **V4.0**

Burden Resistance (1/2) **JCBurris**

Serial Port (0) **0**

K2400 GPIB Address **24**

Measure Fail Indicator

Quality Codes

log(B) / log(J)

cd/A / J

lm/W / B

B/V

Normalized Spectral Radiance - Max (Blk) & Min (Gray)

Reverse Bias Voltage **-5.00** **-10.00** **-15.00**

Leakage Current **-12.2E-9** **-10.9E-9** **-42.5E-9**

Write Data File?

No ☒ Yes

Local Data File **E:\PRL311**

Remote File Path **Z:\Data\RDIO Data\PRL311**



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Kevin P. Klubek states as follows:

I hold a Bachelor of Science Degree in Medicinal Chemistry from the University of Buffalo, 1996

I am the author of more than 31 technical publications, many of which are in the field of organic light emitting devices. I also hold 18 US patents.

I was employed by the Eastman Kodak Company in June of 1996 and have continuously worked in the field of light emitting devices since that time.

I work closely with Liang-Sheng Liao and have read his Declaration. I received the data cited by Dr. Liao in his Declaration prior to the filing date of the Boroson et al. application. I am a co-inventor on the present application. On knowledge and belief, the statements in Dr. Liao's Declaration are accurate and correct.

The undersigned co-inventor declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or

imprisonment, or both, under Section 1001 of title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 2/14/06

Kevin P. Klubek  
Kevin P. Klubek  
15 Butterfly Lane  
West Henrietta, New York 14586 USA